

SEQUENCE LISTING

(1) GENERAL INFORMATION:

- (i) APPLICANT: Feng, Lili
Chen, Sizhong
Xia, Yiyang
- (ii) TITLE OF INVENTION: DIAGNOSTIC AND THERAPEUTIC METHODS
RELATED TO REGULATING ENERGY MOBILIZATION WITH OB PROTEIN
AND OB ANTIBODIES
- (iii) NUMBER OF SEQUENCES: 11
- (iv) CORRESPONDENCE ADDRESS:
 - (A) ADDRESSEE: Olson & Hierl, Ltd.
 - (B) STREET: 20 North Wacker Drive, 36th Floor
 - (C) CITY: Chicago
 - (D) STATE: IL
 - (E) COUNTRY: US
 - (F) ZIP: 60606
- (v) COMPUTER READABLE FORM:
 - (A) MEDIUM TYPE: Floppy disk
 - (B) COMPUTER: IBM PC compatible
 - (C) OPERATING SYSTEM: PC-DOS/MS-DOS
 - (D) SOFTWARE: PatentIn Release #1.0, Version #1.30
- (vi) CURRENT APPLICATION DATA:
 - (A) APPLICATION NUMBER:
 - (B) FILING DATE: 04-JUN-1997
 - (C) CLASSIFICATION:
- (vii) PRIOR APPLICATION DATA:
 - (A) APPLICATION NUMBER: US 60/018,972
 - (B) FILING DATE: 04-JUN-1996
- (viii) ATTORNEY/AGENT INFORMATION:
 - (A) NAME: Olson, Arne M
 - (B) REGISTRATION NUMBER: 30,203
 - (C) REFERENCE/DOCKET NUMBER: TSRI540.1PCT
- (ix) TELECOMMUNICATION INFORMATION:
 - (A) TELEPHONE: 312-580-1180
 - (B) TELEFAX: 312-580-1189

(2) INFORMATION FOR SEQ ID NO:1:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 2793 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: cDNA
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: NO

(vi) ORIGINAL SOURCE:
(A) ORGANISM: Mus musculus

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1:

GGATCCCTGC TCCAGCAGCT GCAAGGTGCA AGAAGAAGAA GATCCCAGGG AGGAAAATGT	60
GCTGGAGACC CCTGTGTCGG TTCCTGTGGC TTTGGTCCTA TCTGTCTTAT GTTCAAGCAG	120
TGCCTATCCA GAAAGTCCAG GATGACACCA AAACCCTCAT CAAGACCATT GTCACCAGGA	180
TCAATGACAT TTCACACACG CAGTCGGTAT CCGCCAAGCA GAGGGTCACT GGCTTGGA	240
TCATTCCCTGG GCTTCACCCC ATTCTGAGTT TGTCCAAGAT GGACCAGACT CTGGCAGTCT	300
ATCAACAGGT CCTCACCAGC CTGCCTTCCC AAAATGTGCT GCAGATAGCC AATGACCTGG	360
AGAATCTCCG AGACCTCCTC CATCTGCTGG CCTTCTCCAA GAGCTGCTCC CTGCCTCAGA	420
CCAGTGGCCT GCAGAAGCCA GAGAGCCTGG ATGGCGTCCT GGAAGCCTCA CTCTACTCCA	480
CAGAGGTGGT GGCTTTGAGC AGGCTGCAGG GCTCTCTGCA GGACATTCTT CAACAGTTGG	540
ATGTTAGCCC TGAATGCTGA AGTTTCAAAG GCCACCAGGC TCCCAAGAAT CATGTAGAGG	600
GAAGAAACCT TGGCTTCCAG GGGTCTTCAG GAGAAGAGAG CCATGTGCAC ACATCCATCA	660
TTCATTTCTC TCCCTCCTGT AGACCACCCA TCCAAAGGCA TGA	720
CTCCACA ATGCTTGACT	
CAAGTTATCC ACACA	780
ACTT	
ATGAGCACA	
GGAGGGGCCA	
GCCTGCAGAG	
GGGACTCTCA	
CCTAGTTCTT CAGCAAGTAG AGATAAGAGC CATCCCATCC CCTCCATGTC CCACCTGCTC	840
CGGGTACATG TTCCTCCGTG GGTACACGCT TCGCTGCGGC CCAGGAGAGG TGAGGTAGGG	900
ATGGGTAGAG CCTTTGGGCT GTCTCAGAGT CTTTGGGAGC ACCGTGAAGG CTGCATCCAC	960
ACACAGCTGG AA	1020
ACTCCCA GCAGCACACG ATGGAAGCAC TTATTTATTT ATTCTGCATT	
CTATTTTGGA TGGATCTGAA GCAAGGCATC AGCTTTTTC	1080
GGCTTTGGGG GTCAGCCAGG	
ATGAGGAAGG CTCCTGGGGT GCTGCTTTC	1140
ATCCTATTGA TGGGTCTGCC CGAGGCAAAC	
CTAATTTT	1200
AGTGACTGGA AGGAAGGTTG GGATCTTCCA AACAAGAGTC TATGCAGGTA	
GCGCTCAAGA TTGACCTCTG GTGACTGGTT TTGTTTCTAT TGTGACTGAC TCTATCCAAA	1260
CACGTTTGCA GCGGCATTGC CGGGAGCATA GGCTAGGTTA TTATCAAAG CAGATGAATT	1320
TTGTCAAGTG TAATATGTAT CTATGTGCAC CTGAGGGTAG AGGATGTGTT AGAGGGAGGG	1380
TGAAGGATCC GGAAGTGTT TCTGAATTAC ATATGTGTGG TAGGCTTTTC TGAAAGGGTG	1440
AGGCATTTTC TTACCTCTGT GGCCACATAG TGTGGCTTTG TGAAAAGGAC AAAGGAGTTG	1500
ACTCTTTCCG GAACATTTGG AGTGTACCAG GCACCCTTG AGGGGCTAAA GCTACAGGCC	1560
TTTTGTTGGC ATATTGCTGA GCTCAGGGAG TGAGGGCCCC ACATTTGAGA CAGTGAGCCC	1620
CAAGAAAAGG GTCCCTGGTG TAGATCTCCA AGGTTGTCCA GGGTTGATCT CACAATGCGT	1680

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TTCTTAAGCA GGTAGACGTT TGCATGCCAA TATGTGGTTC TCATCTGATT GGTTCATCCA 1740
 AAGTAGAACC CTGTCTCCCA CCCATTCTGT GGGGAGTTTT GTTCCAGTGG GAATGAGAAA 1800
 TCACTTAGCA GATGGTCCTG AGCCCTGGGC CAGCACTGCT GAGGAAGTGC CAGGGCCCCA 1860
 GGCCAGGCTG CCAGAATTGC CCTTCGGGCT GGAGGATGAA CAAAGGGGCT TGGGTTTTTC 1920
 CATCACCCCT GCACCCTATG TCACCATCAA ACTGGGGGGC AGATCAGTGA GAGGACACTT 1980
 GATGGAAAGC AATACACTTT AAGACTGAGC ACAGTTTCGT GCTCAGCTCT GTCTGGTGCT 2040
 GTGAGCTAGA GAAGCTCACC ACATACATAT AAAAATCAGA GGCTCATGTC CCTGTGGTTA 2100
 GACCCTACTC GCGGCGGTGT ACTCCACCAC AGCAGCACCG CACCGCTGGA AGTACAGTGC 2160
 TGTCTTCAAC AGGTGTGAAA GAACCTGAGC TGAGGGTGAC AGTGCCCAGG GGAACCCTGC 2220
 TTGCAGTCTA TTGCATTTAC ATACCGCATT TCAGGGCACA TTAGCATCCA CTCCTATGGT 2280
 AGCACACTGT TGACAATAGG ACAAGGGATA GGGGTTGACT ATCCCTTATC CAAAATGCTT 2340
 GGGACTAGAA GAGTTTTTGA TTTTAGAGTC TTTTCAGGCA TAGGTATATT TGAGTATATA 2400
 TAAAATGAGA TATCTTGGGG ATGGGGCCCC AGTATAACA TGAAGTTCAT TTATATTTCA 2460
 TAATACCGTA TAGACACTGC TTGAAGTGTA GTTTTATACA GTGTTTTAAA TAACGTTGTA 2520
 TGCATGAAAG ACGTTTTTAC AGCATGAACC TGTCTACTCA TGCCAGCACT CAAAAACCTT 2580
 GGGGTTTTTG AGCAGTTTGG ATCTTGGGTT TTCTGTTAAG AGATGGTTAG CTTATACCTA 2640
 AAACCATAAT GGCAAACAGG CTGCAGGACC AGACTGGATC CTCAGCCCTG AAGTGTGCCC 2700
 TTCCAGCCAG GTCATACCCT GTGGAGGTGA GCGGGATCAG GTTTTGTGGT GCTAAGAGAG 2760
 GAGTTGGAGG TAGATTTTGG AGGATCTGAG GGC 2793

(2) INFORMATION FOR SEQ ID NO:2:

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 3862 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: cDNA

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(vi) ORIGINAL SOURCE:
 (A) ORGANISM: Mus musculus

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:2:

GTCGACCCAC GCGTCCGGAG GAATCGTTCT GCAAATCCAG GTGTACACCT CTGAAGAAAG 60
 ATGATGTGTC AGAAATTCTA TGTGGTTTTG TTACTCTGGG AATTTCTTTA TGTGATAGCT 120

GCACCTAACC	TGGCATATCC	AATCTCTCCC	TGGAAATTTA	AGTTGTTTTG	TGGACCAACG	180
AACACAACCG	ATGACTCCTT	TCTCTCACCT	GCTGGAGCCC	CAAACAATGC	CTCGGCTTTG	240
AAGGGGGCTT	CTGAAGCAAT	TGTTGAAGCT	AAATTTAATT	CAAGTGGTAT	CTACGTTCTT	300
GAGTTATCCA	AAACAGTCTT	CCACTGTTGC	TTTGGGAATG	AGCAAGGTCA	AAACTGCTCT	360
GCACTCACAG	ACAACACTGA	AGGGAAGACA	CTGGCTTCAG	TAGTGAAGGC	TTCAGTTTTT	420
CGCCAGCTAG	GTGTAAACTG	GGACATAGAG	TGCTGGATGA	AAGGGGACTT	GACATTATTC	480
ATCTGTCATA	TGGAGCCATT	ACCTAAGAAC	CCCTTCAAGA	ATTATGACTC	TAAGGTCCAT	540
CTTTTATATG	ATCTGCCTGA	AGTCATAGAT	GATTCGCCCT	TGCCCCCACT	GAAAGACAGC	600
TTTCAGACTG	TCCAATGCAA	CTGCAGTCTT	CGGGGATGTG	AATGTCATGT	GCCGGTACCC	660
AGAGCCAAAC	TCAACTACGC	TCTTCTGATG	TATTTGGAAA	TCACATCTGC	CGGTGTGAGT	720
TTTCAGTCAC	CTCTGATGTC	ACTGCAGCCC	ATGCTTGTTG	TGAAACCCGA	TCCACCCTTA	780
GGTTTGCATA	TGGAAGTCAC	AGATGATGGT	AATTTAAAGA	TTTCTTGGA	CAGCCAAACA	840
ATGGCACCAT	TTCCGCTTCA	ATATCAGGTG	AAATATTTAG	AGAATTCTAC	AATTGTAAGA	900
GAGGCTGCTG	AAATTGTCTC	AGCTACATCT	CTGCTGGTAG	ACAGTGTGCT	TCCTGGATCT	960
TCATATGAGG	TCCAGGTGAG	GAGCAAGAGA	CTGGATGGTT	CAGGAGTCTG	GAGTGACTION	1020
AGTTCACCTC	AAGTCTTTAC	CACACAAGAT	GTTGTGTATT	TTCCACCCAA	AATTCTGACT	1080
AGTGTGATG	CGAATGCTTC	TTTTATTGTC	ATCTACAAAA	ACGAAAACCA	GATTATCTCC	1140
TCAAAACAGA	TAGTTTGCTG	GAGGAATCTA	GCTGAGAAAA	TCCCTGAGAT	ACAGTACAGC	1200
ATTGTGAGTG	ACCGAGTTAG	CAAAGTTACC	TTCTCCAACC	TGAAAGCCAC	CAGACCTCGA	1260
GGGAAGTTTA	CCTATGACGC	AGTGTACTGC	TGCAATGAGC	AGGCGTGCCA	TCACCGCTAT	1320
GCTGAATTAT	ACGTGATCGA	TGTCAATATC	AATATATCAT	GTGAAACTGA	CGGGTACTTA	1380
ACTAAAATGA	CTTGCAGATG	GTCACCCAGC	ACAATCCAAT	CACTAGTGGG	AAGCACTGTG	1440
CAGCTGAGGT	ATCACAGGCG	CAGCCTGTAT	TGTCCTGATA	GTCCATCTAT	TCATCCTACG	1500
TCTGAGCCCA	AAAAGTGCCT	CTTACAGAGA	GACGGCTTTT	ATGAATGTGT	TTTCCAGCCA	1560
ATCTTTCTAT	TATCTGGCTA	TACAATGTGG	ATCAGGATCA	ACCATTCTTT	AGGTTCACCT	1620
GACTCGCCAC	CAACGTGTGT	CCTTCCTGAC	TCCGTAGTAA	AACCACTACC	TCCATCTAAC	1680
GTAAAAGCAG	AGATTACTGT	AAACACTGGA	TTATTGAAAG	TATCTTGGA	AAAGCCAGTC	1740
TTTCCGGAGA	ATAACCTTCA	ATTCCAGATT	CGATATGGCT	TAAGTGAAA	AGAAATACAA	1800
TGGAAGACAC	ATGAGGTATT	CGATGCAAAG	TCAAAGTCTG	CCAGCCTGCT	GGTGTGAGAC	1860
CTCTGTGCAG	TCTATGTGGT	CCAGGTTGCG	TGCCGGCGGT	TGGATGGACT	AGGATATTGG	1920
AGTAATTGGA	GCAGTCCAGC	CTATACGCTT	GTCATGGATG	TAAAAGTTCC	TATGAGAGGG	1980

CCTGAATTTT	GGAGAAAAAT	GGATGGGGAC	GTTACTAAAA	AGGAGAGAAA	TGTCACCTTG	2040
CTTTGGAAGC	CCCTGACGAA	AAATGACTCA	CTGTGTAGTG	TGAGGAGGTA	CGTGGTGAAG	2100
CATCGTACTG	CCCACAATGG	GACGTGGTCA	GAAGATGTGG	GAAATCGGAC	CAATCTCACT	2160
TTCCTGTGGA	CAGAACCAGC	GCACACTGTT	ACAGTTCTGG	CTGTCAATTC	CCTCGGCGCT	2220
TCCCTTGTGA	ATTTTAACCT	TACCTTCTCA	TGGCCCATGA	GTAAAGTGAG	TGCTGTGGAG	2280
TCACTCAGTG	CTTATCCCCT	GAGCAGCAGC	TGTGTCATCC	TTTCCTGGAC	ACTGTCACCT	2340
GATGATTATA	GTCTGTTATA	TCTGGTTATT	GAATGGAAGA	TCCTTAATGA	AGATGATGGA	2400
ATGAAGTGGC	TTAGAATTCC	CTCGAATGTT	AAAAAGTTTT	ATATCCACGA	TAATTTTATT	2460
CCCATCGAGA	AATATCAGTT	TAGTCTTTAC	CCAGTATTTA	TGGAAGGAGT	TGGAAAACCA	2520
AAGATAATTA	ATGGTTTCAC	CAAAGATGCT	ATCGACAAGC	AGCAGAATGA	CGCAGGGCTG	2580
TATGTCATTG	TACCCATAAT	TATTTCTCT	TGTGTCCTAC	TGCTCGGAAC	ACTGTTAATT	2640
TCACACCAGA	GAATGAAAAA	GTTGTTTTGG	GACGATGTTT	CAAACCCCAA	GAATTGTTCC	2700
TGGGCACAAG	GACTGAATTT	CCAAAAGCCT	GAAACATTTG	AGCATCTTTT	TACCAAGCAT	2760
GCAGAATCAG	TGATATTTGG	TCCTCTTCTT	CTGGAGCCTG	AACCCATTTT	AGAAGAAATC	2820
AGTGTGCGATA	CAGCTTGGA	AAATAAAGAT	GAGATGGTCC	CAGCAGCTAT	GGTCTCCCTT	2880
CTTTTGACCA	CACCAGACCC	TGAAAGCAGT	TCTATTTGTA	TTAGTGACCA	GTGTAACAGT	2940
GCTAACTTCT	CTGGGTCTCA	GAGCACCCAG	GTAACCTGTG	AGGATGAGTG	TCAGAGACAA	3000
CCCTCAGTTA	AATATGCAAC	TCTGGTCAGC	AACGATAAAC	TAGTGGAAC	TGATGAAGAG	3060
CAAGGGTTTA	TCCATAGTCC	TGTCAGCAAC	TGCATCTCCA	GTAATCATT	CCCACTGAGG	3120
CAGTCTTTCT	CTAGCAGCTC	CTGGGAGACA	GAGGCCCAGA	CATTTTTTCT	TTTATCAGAC	3180
CAGCAACCCA	CCATGATTTC	ACCACAACCT	TCATTCTCGG	GGTTGGATGA	GCTTTTGGAA	3240
CTGGAGGGAA	GTTTTCTCTGA	AGAAAATCAC	AGGGAGAAGT	CTGTCTGTTA	TCTAGGAGTC	3300
ACCTCCGTCA	ACAGAAGAGA	GAGTGGTGTG	CTTTTGACTG	GTGAGGCAGG	AATCCTGTGC	3360
ACATTCCCAG	CCCAGTGTCT	GTTCAGTGAC	ATCAGGATCC	TCCAGGAGAG	ATGCTCACAC	3420
TTTGTAGAAA	ATAATTGAG	TTTAGGGACC	TCTGGTGAGA	ACTTTGTACC	TTACATGCCC	3480
CAATTTCAAA	CCTGTTCCAC	GCACAGTCAC	AAGATAATGG	AGAATAAGAT	GTGTGACTTA	3540
ACTGTGTAAT	CTCATCCAAG	AAGCCTCAAG	GTTCCATTCC	AGTAGAGCCT	GTCATGTATA	3600
ATGTGTTCTT	TTATTGTTGT	GGATGTGGGA	GACAAGTGTC	AGAATCTAGT	GTGAAAATGA	3660
TTGTTTCCAA	ACTAAGTGTG	TCTATTTTCT	CTCAGTAATA	CAATGAAACA	TATGAGGAAG	3720
CCCTCATTA	TCTAGTAATG	TAGATGGACT	CTTACTGAAT	ATATTCCCAA	GATACTTGGG	3780
GAAGTCTCCC	TAATTCTAGC	TAAAAATAAA	CCCAGGAATA	GAACACTAA	ACACTGAATC	3840

TGGAAAAAAAA AAAAAAAAAA AG

3862

(2) INFORMATION FOR SEQ ID NO:3:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1974 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: cDNA

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(vi) ORIGINAL SOURCE:

(A) ORGANISM: Mus musculus

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:3:

AAGTCTCCAG GGCAGAGAGG GAGTCAACTC ATTGGCGCTT GAGTCGGCAA AGAAATCAAG	60
ATGGCCAAAG TTCCTGACTT GTTTGAAGAC CTAAAGAACT GTTACAGTGA AAACGAAGAC	120
TACAGTTCTG CCATTGACCA TCTCTCTCTG AATCAGAAAT CCTTCTATGA TGCAAGCTAT	180
GGCTCACTTC ATGAGACTTG CACAGATCAG TTTGTATCTC TGAGAACCTC TGAAACGTCA	240
AAGATGTCCA ACTTCACCTT CAAGGAGAGC CGGGTGACAG TATCAGCAAC GTCAAGCAAC	300
GGGAAGATTC TGAAGAAGAG ACGGCTGAGT TTCAGTGAGA CCTTCACTGA AGATGACCTG	360
CAGTCCATAA CCCATGATCT GGAAGAGACC ATCCAACCCA GATCAGCACC TTACACCTAC	420
CAGAGTGATT TGAGATACAA ACTGATGAAG CTCGTCAGGC AGAAGTTTGT CATGAATGAT	480
TCCCTCAACC AACTATATA TCAGGATGTG GACAAACACT ATCTCAGCAC CACTTGGTTA	540
AATGACCTGC AACAGGAAGT AAAATTTGAC ATGTATGCCT ACTCGTCGGG AGGAGACGAC	600
TCTAAATATC CTGTTACTCT AAAAATCTCA GATTCACAAC TGTTCTGTGAG CGCTCAAGGA	660
GAAGACCAGC CCGTGTTGCT GAAGGAGTTG CCAGAAACAC CAAAACTCAT CACAGGTAGT	720
GAGACCGACC TCATTTTCTT CTGGAAAAGT ATCAACTCTA AGAACTACTT CACATCAGCT	780
GCTTATCCAG AGCTGTTTAT TGCCACCAAA GAACAAAGTC GGGTGACCT GGCACGGGGA	840
CTGCCCTCTA TGACAGACTT CCAGATATCA TAAAAGCAGC CTTATTTTCGG GAGTCTATTC	900
ACTTGGAAG TGCTGACAGT CTGTATGTAC CATGTACAGG AACCTTCCTC ACCCTGAGTC	960
ACTTGACAG CATGTGCTGA GTCTCTGTAA TTCTAAATGA ATGTTTACCC TCTTTGTAAG	1020
AGAAGAGCAA ACCCTAGTGG AGCCACCCCG ACATATGATA CTATCTGTTA TTTTAAAGAG	1080
TACCCTATAG TTTGCTCAGT ACTAATCATT TTAATTACTA TTCTGCATGG CATTCTTAGG	1140
AGGATCAAAA AGACTCTACA CATATTACAG ATGGGTTAAC AAAGGGATAA AACAACTGAA	1200

AAGCACACTC AATGCATTTG GAATATAAAT TCACAGACCA ATCTCACTGT GCACCTTCGG 1260
CTTCAAAATG CCAGTTGAGT AGGATAAAGG TATAAGAACT TAATGCTGTC ATTTTCAAAA 1320
GGAAGGGGAC AATAGCTACA TCTTTCCTAC CTCAGTGGGT TTTACTCCAG TGAGATCATT 1380
TGGATGAAAT CCTCCTGTAA CAGACCTCAA GAAGGAGACA GACTGTTGAA TGTTATTTTT 1440
AAGTTATTTT ATATATGTAT TTATAAATAT ATTTATGATA ATTATATTAT TTATGGAACA 1500
TCCTTAAATC CTCTGAGCTT GACAGGCATC CTCACAGCAG GATTTTCTAG GTGGTCAGTT 1560
AGATATAGTT TCCTCTAGAG CACCATGCTA CAGACTTTAC ACTTTTCCA CAGCCACGAA 1620
GCTCTCTGTA CATTCTGTA CTTGGGAGCC CTTTCATCAT GATCTTAATC TGTACTGTTT 1680
ACTTTGTTCA TCTAAAATGA TAATTGAGTC AGTCTTTTTC CCTCCCATCC TTAAAGCTGT 1740
CTGGGTATTC TTACATCATT CAGTCTCACC TGTAAC TAAC ACCAACCATC TAAAGATGGA 1800
AAGAGCTTAA CTGTGACAAC CACATCACTG TTACCTGAAG TTTCTTTTCT AGAATGTAAT 1860
CAGTGTTTCC CCTGGATTCC AATTTTTTTT TCAAACCACA GTATCATGTA ACTATCAACA 1920
ATAACAATCA ACTCATTATT ATTAATCATA ATTAAATAAA ACAAGTTTGA GCTG 1974

(2) INFORMATION FOR SEQ ID NO:4:

- (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 1339 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: cDNA

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(vi) ORIGINAL SOURCE:
(A) ORGANISM: Mus musculus

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:4:

TGCAGGGTTC GAGGCCTAAT AGGCTCATCT GGGATCCTCT CCAGCCAAGC TTCCTTGTGC 60
AAGTGTCTGA AGCAGCTATG GCAACTGTTC CTGAACTCAA CTGTGAAATG CCACCTTTTG 120
ACAGTGATGA GAATGACCTG TTCTTTGAAG TTGACGGACC CCAAAGATG AAGGGCTGCT 180
TCCAAACCTT TGACCTGGGC TGTCCAGATG AGAGCATCCA GCTTCAAATC TCACAGCAGC 240
ACATCAACAA GAGCTTCAGG CAGGCAGTAT CACTCATTGT GGCTGTGGAG AAGCTGTGGC 300
AGCTACCTGT GTCTTTCCCG TGGACCTTCC AGGATGAGGA CATGAGCACC TTCTTTTCCT 360
TCATCTTTGA AGAAGAGCCC ATCCTCTGTG ACTCATGGGA TGATGATGAT AACCTGCTGG 420
TGTGTGACGT TCCCATTAGA CAGCTGCACT ACAGGCTCCG AGATGAACAA CAAAAAGCC 480

[illegible]

GCTGAGGGAC	TAGCCAGGAG	GGAGAACAGA	AACTCCAGAA	CATCCTGGAA	ATAGCTCCCA	60
GAAAAGCAAG	CAGCCAACCA	GGCAGGTTCT	GTCCCTTTCA	CTCACTGGCC	CAAGGCGCCA	120
CATCTCCCTC	CAGAAAAGAC	ACCATGAGCA	CAGAAAGCAT	GATCCGCGAC	GTGGAAGTGG	180
CAGAAGAGGC	ACTCCCCCAA	AAGATGGGGG	GCTTCCAGAA	CTCCAGGCGG	TGCCTATGTC	240
TCAGCCTCTT	CTCATTCCTG	CTTGTGGCAG	GGGCCACCAC	GCTCTTCTGT	CTACTGAACT	300
TCGGGGTGAT	CGGTCCCCAA	AGGGATGAGA	AGTTCCCCAA	TGGCCTCCCT	CTCATCAGTT	360

CTATGGCCCA GACCCTCACA CTCAGATCAT CTTCTCAAAA TTCGAGTGAC AAGCCTGTAG 420
 CCCACGTCGT AGCAAACCAC CAAGTGGAGG AGCAGCTGGA GTGGCTGAGC CAGCGCGCCA 480
 ACGCCCTCCT GGCCAACGGC ATGGATCTCA AAGACAACCA ACTAGTGGTG CCAGCCGATG 540
 GGTGTACCT TGTCTACTCC CAGGTTCTCT TCAAGGGACA AGGCTGCCCC GACTACGTGC 600
 TCCTCACCCA CACCGTCAGC CGATTTGCTA TCTCATACCA GGAGAAAGTC AACCTCCTCT 660
 CTGCCGTCAG GAGCCCCTGC CCCAAGGACA CCCCTGAGGG GGCTGAGCTC AAACCTGGT 720
 ATGAGCCCAT ATACCTGGGA GGAGTCTTCC AGCTGGAGAA GGGGGACCAA CTCAGCGCTG 780
 AGGTCAATCT GCCCAAGTAC TTAGACTTTG CGGAGTCCGG GCAGGTCTAC TTTGGAGTCA 840
 TTGCTCTGTG AAGGGAATGG GTGTTTCATCC ATTCTCTACC CAGCCCCCAC TCTGACCCCT 900
 TTA CTCTGAC CCCTTTATTG TCTACTCCTC AGAGCCCCCA GTCTGTGTCC TTCTAACTTA 960
 GAAAGGGGAT TATGGCTCAG AGTCCAACTC TGTGCTCAGA GCTTTCAACA ACTACTCAGA 1020
 AACACAAGAT GCTGGGACAG TGACCTGGAC TGTGGGCCTC TCATGCACCA CCACCCACGG 1080
 AATCGAGAAA GAGCTATCAA TCTGGAATTC ACTGGAGCCT CGAATGTCCA TTCCTGAGTT 1140
 CTGCAAAGGG AGAGTGGTCA GGTGTCCTCT GTCTCAGAAT GAGGCTGGAT AAGATCTCAG 1200
 GCCTTCCTAC CTTCAGACCT TTCCAGACTC TTCCCTGAGG TGCAATGCAC AGCCTTCCTC 1260
 ACAGAGCCAG CCCCCCTCTA TTTATATTTG CACTTATTAT TTATTATTTA TTTATTATTT 1320
 ATTTATTTGC TTATGAATGT ATTTATTTGG AAGGCCGGGG TGTCTCTGGAG GACCCAGTGT 1380
 GGGAAGCTGT CTTCAGACAG ACATGTTTTT TGTGAAAACG GAGCTGAGCT GTCCCCACCT 1440
 GGCCTCTCTA CCTTGTTGCC TCCTCTTTTG CTTATGTTTA AAACAAAATA TTTATCTAAC 1500
 CCAATTGTCT TAATAACGCT GATTTGGTGA CCAGGCTGTC GCTACATCAC TGAACCTCTG 1560
 CTCCCCACGG GAGCCGTGAC TGTAATTGCC CTACGGGTCA TTGAGAGAAA TAAAGATCGC 1620
 TTGGAAAAG 1629

(2) INFORMATION FOR SEQ ID NO:6:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 4110 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: cDNA
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: NO
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: Mus musculus

662260 : 662260

1999

GAGACTCTGG	CCCCACGGGA	CACAGTGTCA	CTGGTTTGAA	ACTTCTCAGC	CACCTTGGTG	60
AAGGGACTGA	GCTGTTAGAG	ACACTTCTGA	GGCTCCTCAC	GCTTGGGTCT	TGTTCACTCC	120
ACGGAGTAGC	CTAGTCAACT	GCAAGAGAAC	GGAGAACGTT	GGATTTGGAG	CAGAAGTGCA	180
AAGTCTCAGA	CATGGCTTGC	CCCTGGAAGT	TTCTCTTCAA	AGTCAAATCC	TACCAAAGTG	240
ACCTGAAAGA	GGAAAAGGAC	ATTAACAACA	ACGTGAAGAA	AACCCCTTGT	GCTGTTCTCA	300
GCCCAACAAT	ACAAGATGAC	CCTAAGAGTC	ACCAAAATGG	CTCCCCGCAG	CTCCTCACTG	360
GGACAGCACA	GAATGTTCCA	GAATCCCTGG	ACAAGCTGCA	TGTGACATCG	ACCCGTCCAC	420
AGTATGTGAG	GATCAAAAAC	TGGGGCAGTG	GAGAGATTTT	GCATGACACT	CTTCACCACA	480
AGGCCACATC	GGATTTCACT	TGCAAGTCCA	AGTCTTGCTT	GGGGTCCATC	ATGAACCCCA	540
AGAGTTTGAC	CAGAGGACCC	AGAGACAAGC	CTACCCCTCT	GGAGGAGCTC	CTGCCTCATG	600
CCATTGAGTT	CATCAACCAG	TATTATGGCT	CCTTTAAAGA	GGCAAAAATA	GAGGAACATC	660
TGGCCAGGCT	GGAAGCTGTA	ACAAAGGAAA	TAGAAACAAC	AGGAACCTAC	CAGCTCACTC	720
TGGATGAGCT	CATCTTTGCC	ACCAAGATGG	CCTGGAGGAA	TGTCCCTCGC	TGCATCGGCA	780
GGATCCAGTG	GTCCAACCTG	CAGGTCTTTG	ACGCTCGGAA	CTGTAGCACA	GCACAGGAAA	840
TGTTTCAGCA	CATCTGCAGA	CACATACTTT	ATGCCACCAA	CAATGGCAAC	ATCAGGTCGG	900
CCATCACTGT	GTTCCCCCAG	CGGAGTGACG	GCAAACATGA	CTTCAGGCTC	TGGAATTCAC	960
AGCTCATCCG	GTACGCTGGC	TACCAGATGC	CCGATGGCAC	CATCAGAGGG	GATGCTGCCA	1020
CCTTGAGATT	CACCCAGTTG	TGCATCGACC	TAGGCTGGAA	GCCCCGCTAT	GGCCGCTTTG	1080
ATGTGCTGCC	TCTGGTCTTG	CAAGCTGATG	GTCAAGATCC	AGAGGTCTTT	GAAATCCCTC	1140
CTGATCTTGT	GTTGGAGGTG	ACCATGGAGC	ATCCCAAGTA	CGAGTGGTTC	CAGGAGCTCG	1200
GGTTGAAGTG	GTATGCACTG	CCTGCCGTGG	CCAACATGCT	ACTGGAGGTG	GGTGGCCTCG	1260
AATTCCCAGC	CTGCCCCCTT	AATGGTTGGT	ACATGGGCAC	CGAGATTGGA	GTTCGAGACT	1320
TCTGTGACAC	ACAGCGCTAC	AACATCCTGG	AGGAAGTGGG	CCGAAGGATG	GGCCTGGAGA	1380
CCCACACACT	GGCCTCCCTC	TGGAAAGACC	GGGCTGTAC	GGAGATCAAT	GTGGCTGTGC	1440
TCCATAGTTT	CCAGAAGCAG	AATGTGACCA	TCATGGACCA	CCACACAGCC	TCAGAGTCCT	1500
TCATGAAGCA	CATGCAGAAT	GAGTACCGGG	CCCGTGGAGG	CTGCCCGGCA	GACTGGATTT	1560
GGCTGGTCCC	TCCAGTGTCT	GGGAGCATCA	CCCCTGTGTT	CCACCAGGAG	ATGTTGAACT	1620
ATGTCCTATC	TCCATTCTAC	TACTACCAGA	TCGAGCCCTG	GAAGACCCAC	ATCTGGCAGA	1680
ATGAGAAGCT	GAGGCCCAGG	AGGAGAGAGA	TCCGATTTAG	AGTCTTGGTG	AAAGTGGTGT	1740
TCTTTGCTTC	CATGCTAATG	CGAAAGGTCA	TGGCTTCACG	GGTCAGAGCC	ACAGTCCTCT	1800

TTGCTACTGA	GACAGGGAAG	TCTGAAGCAC	TAGCCAGGGA	CCTGGCCACC	TTGTTCAGCT	1860
ACGCCTTCAA	CACCAAGGTT	GTCTGCATGG	ACCAGTATAA	GGCAAGCACC	TTGGAAGAGG	1920
AGCAACTACT	GCTGGTGGTG	ACAAGCACAT	TTGGGAATGG	AGACTGTCCC	AGCAATGGGC	1980
AGACTCTGAA	GAAATCTCTG	TTCATGCTTA	GAGAACTCAA	CCACACCTTC	AGGTATGCTG	2040
TGTTTGGCCT	TGGCTCCAGC	ATGTACCCCTC	AGTTCTGCGC	CTTTGCTCAT	GACATCGACC	2100
AGAAGCTGTC	CCACCTGGGA	GCCTCTCAGC	TTGCCCAAC	AGGAGAAGGG	GACGAACTCA	2160
GTGGGCAGGA	GGATGCCTTC	CGCAGCTGGG	CTGTACAAAC	CTTCCGGGCA	GCCTGTGAGA	2220
CCTTTGATGT	CCGAAGCAAA	CATCACATTC	AGATCCCGAA	ACGCTTCACT	TCCAATGCAA	2280
CATGGGAGCC	ACAGCAATAT	AGGCTCATCC	AGAGCCCGGA	GCCTTTAGAC	CTCAACAGAG	2340
CCCTCAGCAG	CATCCATGCA	AAGAACGTGT	TTACCATGAG	GCTGAAATCC	CAGCAGAATC	2400
TGCAGAGTGA	AAAGTCCAGC	CGCACCACCC	TCCTCGTTCA	GCTCACCTTC	GAGGGCAGCC	2460
GAGGGCCCAG	CTACCTGCCT	GGGGAACACC	TGGGGATCTT	CCCAGGCAAC	CAGACCGCCC	2520
TGGTGCAGGG	AATCTTGGAG	CGAGTTGTGG	ATTGTCCTAC	ACCACACCAA	ACTGTGTGCC	2580
TGGAGGTTCT	GGATGAGAGC	GGCAGCTACT	GGGTCAAAGA	CAAGAGGCTG	CCCCCTGCT	2640
CACTCAGCCA	AGCCCTCACC	TACTTCCTGG	ACATTACGAC	CCCTCCCACC	CAGCTGCAGC	2700
TCCACAAGCT	GGCTCGCTTT	GGCACGGACG	AGACGGATAG	GCAGAGATTG	GAGGCCTTGT	2760
GTCAGCCCTC	AGAGTACAAT	GACTGGAAGT	TCAGCAACAA	CCCCACGTTT	CTGGAGGTGC	2820
TTGAAGAGTT	CCCTTCCTTG	CATGTGCCCC	CTGCCTTCCT	GCTGTGCGAG	CTCCCTATCT	2880
TGAAGCCCCG	CTACTACTCC	ATCAGCTCCT	CCCAGGACCA	CACCCCTCG	GAGGTTCACT	2940
TCACTGTGGC	CGTGGTCACC	TACCGCACCC	GAGATGGTCA	GGGTCCCCTG	CACCATGGTG	3000
TCTGCAGCAC	TTGGATCAGG	AACCTGAAGC	CCCAGGACCC	AGTGCCCTGC	TTTGTGCGAA	3060
GTGTCAGTGG	CTTCCAGCTC	CCTGAGGACC	CCTCCCAGCC	TTGCATCCTC	ATTGGGCCTG	3120
GTACGGGCAT	TGCTCCCTTC	CGAAGTTTCT	GGCAGCAGCG	GCTCCATGAC	TCCCAGCACA	3180
AAGGGCTCAA	AGGAGGCCGC	ATGAGCTTGG	TGTTTGGGTG	CCGGCACCCG	GAGGAGGACC	3240
ACCTCTATCA	GGAAGAAATG	CAGGAGATGG	TCCGCAAGAG	AGTGCTGTTC	CAGGTGCACA	3300
CAGGCTACTC	CCGGCTGCCC	GGCAAACCCA	AGGTCTACGT	TCAGGACATC	CTGCAAAAGC	3360
AGCTGGCCAA	TGAGGTACTC	AGCGTTCTCC	ACGGGGAGCA	GGGCCACCTC	TACATTTGCG	3420
GAGATGTGCG	CATGGCTCGG	GATGTGGCTA	CCACATTGAA	GAAGCTGGTG	GCCACCAAGC	3480
TGAACTTGAG	CGAGGAGCAG	GTGGAAGACT	ATTTCTTCCA	GCTCAAGAGC	CAGAAACGTT	3540
ATCATGAAGA	TATCTTCGGT	GCAGTCTTTT	CCTATGGGGC	AAAAAGGGC	AGCGCCTTGG	3600
AGGAGCCCAA	AGCCACGAGG	CTCTGACAGC	CCAGAGTTCC	AGCTTCTGGC	ACTGAGTAAA	3660

662260 662261 662262 662263 662264 662265 662266 662267 662268 662269 662270 662271 662272 662273 662274 662275 662276 662277 662278 662279 662280 662281 662282 662283 662284 662285 662286 662287 662288 662289 662290 662291 662292 662293 662294 662295 662296 662297 662298 662299 662300 662301 662302 662303 662304 662305 662306 662307 662308 662309 662310 662311 662312 662313 662314 662315 662316 662317 662318 662319 662320 662321 662322 662323 662324 662325 662326 662327 662328 662329 662330 662331 662332 662333 662334 662335 662336 662337 662338 662339 662340 662341 662342 662343 662344 662345 662346 662347 662348 662349 662350 662351 662352 662353 662354 662355 662356 662357 662358 662359 662360 662361 662362 662363 662364 662365 662366 662367 662368 662369 662370 662371 662372 662373 662374 662375 662376 662377 662378 662379 662380 662381 662382 662383 662384 662385 662386 662387 662388 662389 662390 662391 662392 662393 662394 662395 662396 662397 662398 662399 662400 662401 662402 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GATAATGGTG AGGGGCTTGG GGAGACAGCG AAATGCAATC CCCCCAAGC CCCTCATGTC      3720
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TCCTCTCCTC CCTCCCCTCT CTCCCTTTCC TCCCTTCTTC TCCACTCCCC AGCTCCCTCC      3840
TTCTCCTTCT CCTCCTTTGC CTCTCACTCT TCCTTGAGC TGAGAGCAGA GAAAAACTCA      3900
ACCTCCTGAC TGAAGCACTT TGGGTGACCA CCAGGAGGCA CCATGCCGCC GCTCTAATAC      3960
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ACTCCAATG ATGGCTTGGG CCTTTCCTGT ATAATTCCTT GATGAAAAAT ATTTATATAA      4080
AATACATTTT ATTTTAATCA AAAAAAAAAA      4110

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(2) INFORMATION FOR SEQ ID NO:7:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 465 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: cDNA
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: NO
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: *Rattus norvegicus*

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:7:

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GGCATCATGG CTGCCCTTCG GCCTCTGGTG AAGCCCAAGA TCGTCAAAAA GAGGACCAAG      60
AAGTTCATCA GGCACCAGTC GGACCGATAT GTGAAAATTA AGCGAAACTG GCGGAAACCC      120
AGAGGCATCG ACAACAGGGT GCGGAGAAGA TTCAAGGGCC AGATCCTGAT GCCCAACATT      180
GGTTACGGGA GTAACAAGAA AACCAAGCAC ATGCTGCCTA GCGGCTTCCG GAAGTTTCTG      240
GTCCACAATG TCAAGGAGCT GGAAGTGCTG CTGATGTGCA ACAAATCTTA CTGTGCTGAG      300
ATTGCTCACA ATGTGTCCTC TAAGAACCGA AAAGCCATCG TAGAAAGAGC AGCACAGCTG      360
GCCATCAGAG TCACCAATCC CAACGCCAGG CTACGCAGCG AAGAGAATGA ATAGATGGCT      420
TGTGTGCCTG TTTTGTGTTT AAATAAAACC ACAAAAACCTG CCAAAA      465

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(2) INFORMATION FOR SEQ ID NO:8:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 21 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: cDNA

GAGGACCAAG
 GCGGAAACCC
 GCCCAACATT
 GAAGTTTCTG
 CTGTGCTGAG
 AGCACAGCTG
 ATAGATGGCT
 CCAAAA

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(vi) ORIGINAL SOURCE:

(A) ORGANISM: Mus musculus

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:8:

GCTATCGACA AGCAGCAGAA T

21

(2) INFORMATION FOR SEQ ID NO:9:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 22 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: cDNA

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(vi) ORIGINAL SOURCE:

(A) ORGANISM: Mus musculus

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:9:

TGAACACAAC AACATAAAGC CC

22

(2) INFORMATION FOR SEQ ID NO:10:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 26 base pairs

(B) TYPE: nucleic acid

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(C) STRANDEDNESS: single
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(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: cDNA

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(vi) ORIGINAL SOURCE:

(A) ORGANISM: Mus musculus

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:10:

TGTTATATCT GGTTATTATT GAATGG

26

(2) INFORMATION FOR SEQ ID NO:11:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 27 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: cDNA

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(vi) ORIGINAL SOURCE:

(A) ORGANISM: Mus musculus

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:11:

CATTAAATGA TTTATTATCA GAATTGC

27

[illegible]